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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/780,853

## Applicant(s)

TZENG ET AL.

## Examiner

JOSHUA JOO

## Art Unit

2454

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Detailed Action***

1. This Office action is in response to Applicant's communication filed on 12/27/2008.

Claims 1-19 are pending for examination.

**Continued Examination Under 37 CFR 1.114**

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/2008 has been entered.

**Response to Arguments**

3. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

**Claim Rejections - 35 USC § 101**

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 8-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

6. Regarding claim 8, Applicant is seeking to patent a network device. According to Applicant's specification, it appears that Applicant intends for the invention to be implemented by various modules, interfaces, and tables on a semiconductor substrate (Paragraph 0041). The claimed invention comprises the modules, interfaces, and table but lacks any hardware. The ports and table of the claimed network

device may reasonably be interpreted as software and the “means for” may be interpreted as software “means for”. Therefore, the network device appears to be directed to only software. Software does not meet one of the four categories of invention and is not statutory. Specifically, software is not a series of steps or acts and thus is not a process. Software is not a physical article or object and as such is not a machine or manufacture. Software is not a combination of substances and therefore not a composition of matter.

7. Regarding claim 14, Applicant is seeking to patent a network device. The claimed invention of a network device does not comprise any hardware and all of the components of the claimed network device may reasonably be interpreted as software. Therefore, the network device appears to be directed to a software device. Software does not meet one of the four categories of invention and is not statutory.

#### **Claim Objections**

8. Claims 2-7, 9-13, 15-18, and 19 are objected to because of the following informalities:
- i) Regarding claims 2-7, “A method” should be changed to “The method” since the claims depend on the method of a previous claim.
  - ii) Regarding claims 9-13, 15-18, and 19 “A network device” should be changed to “The network device” since the claims depend on the network device of a previous claim.

#### **Claim Rejections - 35 USC § 112**

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- i) Regarding claim 5, it is unclear as to exactly which steps “the method steps” are referring to in the claim.

**Claim Rejections - 35 USC § 102**

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, 5, 7-8, 12, 14, and 18 are rejected under 35 U.S.C. 102(c) as being anticipated by Lu, US Publication #2003/0169734 (Lu hereinafter).

13. As per claim 1, Lu teaches the invention as claimed including a method of handling datagrams in a network device coupled to other network devices, said method comprising:

receiving an incoming datagram at a port of the network device (Paragraph 0074. Incoming packet.);

determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram and a lookup of an address resolution lookup (ARL) table (Paragraph 0074. Lookup destination address information to obtain destination port.);

performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraph 0070.

Determine that there is no corresponding entry for source address in the forwarding database.);

writing an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

determining whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066. Forwarding databases have the same number of

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addresses. Paragraphs 0067; 0070. Determine corresponding address in neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.); and

continuing to relay a learning message with the source address to the other network devices when it is determined that the other network devices have not learned the source address (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches.).

14. As per claim 8, Lu teaches the invention as claimed including a network device coupled to other network devices for handling datagrams comprising:

a plurality of ports for receiving an incoming datagram (Paragraph 0063. Eight-port switch. Paragraph 0074. Incoming packet.);

an address resolution lookup (ARL) table (Paragraph 0065. Forwarding database.);  
means for determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram (Paragraph 0074. Lookup destination address information to obtain destination port.);

lookup means for performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraph 0070. Determine that there is no corresponding entry for source address in the forwarding database.);

writing means for writing an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

determining means for determining whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066. Forwarding databases have the same number of addresses. Paragraphs 0067; 0070. Determine corresponding address in

neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.); and

relaying means for relaying a learning message with the source address to the other network devices when it is determined that the other network devices have not learned the source address (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches.).

15. As per claim 14, Lu teaches the invention as claimed including a network device coupled to other network devices for handling datagrams comprising:

a plurality of ports for receiving an incoming datagram (Paragraph 0063. Eight-port switch. Paragraph 0074. Incoming packet.);

an address resolution lookup (ARL) table (Paragraph 0065. Forwarding database.);

an egress port determiner for determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram (Paragraph 0074. Lookup destination address information to obtain destination port.);

an ARL table reader for performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraph 0070. Determine that there is no corresponding entry for source address in the forwarding database.);

an ARL table writer for writing an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

a global address determiner for determining whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066. Forwarding databases have the same number of addresses. Paragraphs 0067; 0070. Determine corresponding

address in neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.); and

a learning message forwarder for relaying a learning message with the source address to the other network devices when it is determined that the other network devices have not learned the source address (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches.).

16. As per claim 5, Lu teaches the method as recited in claim 4, wherein the method steps are also performed in the other network devices (Paragraph 0065. Refresh packets between switches.).

17. As per claim 7, Lu teaches the method as recited in claim 1, wherein the step of receiving an incoming datagram comprises receiving an incoming data packet (Paragraph 0074. Incoming packet.).

18. As per claim 12, Lu teaches the network device as recited in claim 8, wherein the network device is connected to the other network devices through one of a stacking port and an expansion port of the network device (Paragraph 0062. Stacked switches. Paragraph 0063. Connected by ports.).

19. As per claim 18, Lu teaches the network device as recited in claim 14, wherein the network device is connected to the other network devices through one of a stacking port and an expansion port of the network device.

#### **Claim Rejections - 35 USC § 103**

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person



having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 2, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Kerstein, US Patent #6,111,874 (Kerstein hereinafter).

22. As per claim 2, Lu does not specifically teach the method as recited in claim 1, wherein the method further comprises updating a hit bit in the ARL table when the source address has been learned previously.

23. Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested combination is that Kerstein's teachings would improve on Lu's teachings by using the bit to implement an aging algorithm (col. 7, lines 38-39).

25. As per claim 9, Lu does not specifically teach the network device as recited in claim 8, further comprising updating means for updating a hit bit in the ARL table when the source address has been learned previously.

26. Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested

combination is that Kerstein's teachings would improve on Lu's teachings by using the bit to implement an aging algorithm (col. 7, lines 38-39).

28. As per claim 15, Lu does not specifically teach the network device as recited in claim 14, further comprising an updater for updating a hit bit in the ARL table when the source address has been learned previously.

29. Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested combination is that Kerstein's teachings would improve on Lu's teachings by using the bit to implement an aging algorithm (col. 7, lines 38-39).

31. Claims 3, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Sampath et al. US Publication #2002/0037006 (Sampath hereinafter).

32. As per claim 3, Lu does not specifically teach the method as recited in claim 1, wherein the step of determining whether the other network devices have learned the source address comprises examining a learned all devices tag for the source address in the ARL table.

33. Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

34. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag

and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for the suggested combination is that Sampath's teachings would improve on Lu's teachings by providing high performance switching in a communications network (Paragraph 0003).

35. As per claim 10, Lu does not specifically teach the network device as recited in claim 8, wherein the determining means comprises examining means for examining a learned all devices tag for the source address in the ARL table.

36. Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for the suggested combination is that Sampath's teachings would improve on Lu's teachings by providing techniques to implement high performance switching in a communications network (Paragraph 0003).

38. As per claim 16, Lu does not specifically teach the network device as recited in claim 14, wherein the global address determiner comprises an examiner for examining a learned all devices tag for the source address in the ARL table.

39. Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for

the suggested combination is that Sampath's teachings would improve on Lu's teachings by providing high performance switching in a communications network (Paragraph 0003).

41. Claims 4, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Gullicksen et al. US Publication #2004/0190461 (Gullicksen hereinafter).

42. As per claim 4, Lu teaches the method as recited in claim 1, wherein the network device and the other network devices are connected through a connection and the step of continuing to relay a learning message comprises continuing to relay a learning message through the connection. Lu does not specifically teach that the connection is a ringed connection and relaying is through the ringed connection.

43. Gullicksen teaches of switches in a ringed connection, wherein configuration information is relayed through the ringed connection (Paragraph 0055).

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve on Lu's teachings by enabling dynamic updating of information and providing protection for transmission of data (Paragraphs 0004 and 0012).

45. As per claim 11, Lu teaches the network device as recited in claim 8, wherein the network device and the other network devices are connected through a connection and relaying means comprises ring relaying means for relaying a learning message through the connection. Lu does not specifically teach that the connection is a ringed connection and relaying is through the ringed connection.

46. Gullicksen teaches of switches in a ringed connection, wherein configuration information is relayed through the ringed connection (Paragraph 0055).

47. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve on Lu's teachings by enabling dynamic updating of information and providing protection for transmission of data (Paragraphs 0004 and 0012).

48. As per claim 17, Lu teaches the network device as recited in claim 14, wherein the network device and the other network devices are connected through a connection and relaying means comprises ring relaying means for relaying a learning message through the connection. Lu does not specifically teach that the connection is a ringed connection and relaying is through the ringed connection.

49. Gullicksen teaches of switches in a ringed connection, wherein configuration information is relayed through the ringed connection (Paragraph 0055).

50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve on Lu's teachings by enabling dynamic updating of information and providing protection for transmission of data (Paragraphs 0004 and 0012).

51. Claims 6, 13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Kotzur et al. US Patent #6,094,434 (Kotzur hereinafter).

52. As per claim 6, Lu teaches the method as recited in claim 4, wherein the step of determining an egress port comprises flooding with the incoming datagram (Paragraph 0074. Broadcast the packet if the

switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

53. Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

54. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's teachings would improve on Lu's teachings by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

55. As per claim 13, Lu teaches the network device as recited in claim 8, wherein the means for determining an egress port comprises flooding means for flooding with the incoming datagram when the lookup of the ARL table does not find a match with the destination address (Paragraph 0074. Broadcast the packet if the switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

56. Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

57. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's teachings would improve on Lu's teachings by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

58. As per claim 19, Lu teaches the network device as recited in claim 14, wherein egress port determiner comprises a port flooder for flooding with the incoming datagram when the lookup of the ARL table does not find a match with the destination address (Paragraph 0074. Broadcast the packet if the switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

59. Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

60. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's teachings would improve on Lu's teachings by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

### **Conclusion**

61. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

62. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Thursday 8AM to 5PM and every other Friday.

63. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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64. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J. J./

Examiner, Art Unit 2454

/Nathan J. Flynn/

Supervisory Patent Examiner, Art Unit 2454